

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/11938

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H03F1/32 H04L27/36 H04B1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03F H04L H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 373 902 B1 (HA JI-WON ET AL) 16 April 2002 (2002-04-16)	1-8, 12-15, 17-19
Y	the whole document	9,16
Y	US 5 903 823 A (MORIYAMA YUKIHIRO ET AL) 11 May 1999 (1999-05-11)	9,16
A	column 44, line 27 - column 45, line 27; figure 50	1-8, 12-15,17
X	EP 0 982 849 A (NIPPON ELECTRIC CO) 1 March 2000 (2000-03-01)	1-7, 12-14, 17-19
A	paragraphs '0036!, '0044! - '0057!; figure 1	8,9,15, 16
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

6 July 2004

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14/07/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 072 364 A (GHANNOUCHI FADHEL M ET AL) 6 June 2000 (2000-06-06) the whole document	1-8, 12-15, 17-19
X	EP 1 107 449 A (NIPPON ELECTRIC CO) 13 June 2001 (2001-06-13) paragraphs '0012! - '0022!; figure 7	1-7, 12-14, 17-19
X	EP 0 973 307 A (MATSUSHITA ELECTRIC IND CO LTD) 19 January 2000 (2000-01-19) the whole document	1-7, 12-14, 17-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/11938

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6373902	B1	16-04-2002	KR	251561 B1	15-04-2000
US 5903823	A	11-05-1999	JP	3460105 B2	27-10-2003
			JP	9083587 A	28-03-1997
			JP	3323715 B2	09-09-2002
			JP	9153849 A	10-06-1997
			JP	3378424 B2	17-02-2003
			JP	9233145 A	05-09-1997
			US	6081698 A	27-06-2000
			US	6091941 A	18-07-2000
EP 0982849	A	01-03-2000	JP	2000069098 A	03-03-2000
			DE	69911339 D1	23-10-2003
			DE	69911339 T2	01-07-2004
			EP	0982849 A1	01-03-2000
			KR	2000017447 A	25-03-2000
			US	6587513 B1	01-07-2003
US 6072364	A	06-06-2000	NONE		
EP 1107449	A	13-06-2001	JP	3381689 B2	04-03-2003
			JP	2001156868 A	08-06-2001
			AU	772463 B2	29-04-2004
			AU	7177200 A	31-05-2001
			CN	1298236 A	06-06-2001
			EP	1107449 A2	13-06-2001
			US	6741867 B1	25-05-2004
EP 0973307	A	19-01-2000	JP	3360029 B2	24-12-2002
			JP	2000031840 A	28-01-2000
			EP	0973307 A2	19-01-2000
			US	6272326 B1	07-08-2001